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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/812,530

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Marcus Marchesi Martins

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TEXAS INSTRUMENTS INCORPORATED

P O BOX 655474, M/S 3999

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EXAMINER

NGUYEN, KHANH V

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

A

Office Action Summary	Application No.	Applicant(s)	
	10/812,530	MARTINS, MARCUS MARCHESI	
	Examiner	Art Unit	
	Khanh V. Nguyen	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1,4-6,8-10 and 13-15 is/are rejected.
- 7) ☒ Claim(s) 2,3,7,11,12 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 7, 16 are objected to because of the following informalities: "said drive signal current" should correctly be -- **said drive current** --. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Hirose et al. (5,900,780).

Hirose et al. (Fig. 5) disclose an amplifier circuit comprising: an input (IN+, IN-) for receiving data signals; a voltage to current conversion circuit (2) can be read as a first circuit operable with a first supply rail (VDD2) coupled with said input and having components (Q4-Q6, I1) operated at a first voltage and the first circuit (2) for providing a current signal indicative of the data signals; and an output circuit (1) can be read as a second circuit operable with a second supply rail (VDD1) coupled with the first circuit (2) and having components (Q1, Q2) operated at a second voltage for providing a drive signal to the load (RL), wherein the first circuit (2) and the second circuit (1) are

cooperable for providing a push-push (Q1, Q2) output which is equivalent of class AB drive current to the load (RL).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-6, 8-10, 13-15, 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirose et al.

Regarding claim 4, the difference between claimed invention and Hirose et al. is the second voltage is approximately 4-5 times the first voltage. However, the exact voltage used would be a result effective variable set by component values, input signal level etc. and cannot of itself be considered patentably distinct from Hirose et al.

Regarding claim 5, Hirose (Fig. 5) disclose the claimed invention (see Rejected claim 1) except the voltages claimed. However, the exact voltage used would be a result effective variable set by component values, input signal level etc. and cannot of itself be considered patentably distinct from Hirose et al.

Regarding claim 6, wherein the exact current produced would be a result effective variable set by component values, input signal level etc. and cannot of itself be considered patentably distinct from Hirose et al.

Regarding claim 8, wherein the input is a differential input for receiving D/A converter, see column 12, lines 44-63.

Regarding claim 9, the difference between the claimed invention and Hirose et al. is the circuits are integrated on a semiconductor chip. However, such construction has become standard in the art and would have been an obvious modification in the absence of unexpected results.

Regarding claim 10, the difference between claimed invention (see Rejected claim 1) and Hirose et al. is a piezo element provided for positioning a head in a mass data storage device. However, piezo element used in mass data storage device, or the like is well known in the art (see Murphy et al. 6,617,758 or Fontanella et al. (6,246,152)). Therefore, the amplifier circuit for providing drive signals to piezo element or a conventional load is depended on how the circuit is implemented ie. if the amplifier circuit is intended for data storage device or disk device, a piezo element is needed.

Regarding claim 13, the difference between claimed invention and Hirose et al. is the second voltage is approximately 4-5 times the first voltage. However, the exact voltage used would be a result effective variable set by component values, input signal level etc. and cannot of itself be considered patentably distinct from Hirose et al.

Regarding claim 14, the difference between claimed invention and Hirose et al. is the voltage range claimed. However, the exact voltage used would be a result effective variable set by component values, input signal level etc. and cannot of itself be considered patentably distinct from Hirose et al.

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Regarding claim 15, Hirose et al. disclose the claimed invention (see Rejected claim 1) except current value claimed. However, the exact current produced would be a result effective variable set by component values, input signal level etc. and cannot of itself be considered patentably distinct from Hirose et al.

Regarding claim 17, wherein the input is a differential input for receiving D/A converter, see column 12, lines 44-63.

Regarding claim 18, the difference between the claimed invention and Hirose et al. is the circuits are integrated on a semiconductor chip. However, such construction has become standard in the art and would have been an obvious modification in the absence of unexpected results.

Regarding claim 19, the difference between claimed invention (see Rejected claim 1) and Hirose et al. is a type of load. However, it is well known in the art that load can be either a resistive load, inductive load or capacitive load and implementing of such a known load would consider an intended use of the invention and system design in particular.

Regarding claim 20, the difference between claimed invention and Hirose et al. is voltage range claimed. However, the exact voltage used would be a result effective variable set by component values, input signal level etc. and cannot of itself be considered patentably distinct from Hirose et al.

Allowable Subject Matter

Claims 2, 3, 7, 11, 12, 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 2, 3, 11, 12 call for, among others, wherein the second circuit including a mirror circuit for mirroring the current signal provided by the first circuit at a predetermined mirror ratio for providing the drive current.

Claims 7, 16 call for, among others, wherein the second circuit includes a first branch for receiving from the first circuit a source/sink current indicative of the data signals and a second branch for outputting the drive signal to the load, wherein the drive current is a predetermined ratio of the source/sink current.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional references (Murphy et al. (6,617,758); Fontanella et al. (6,246,152)) disclose piezo element used in data storage device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh V. Nguyen whose telephone number is (571) 272-1767. The examiner can normally be reached from 8:00 AM - 3:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone numbers

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for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Khanh Van Nguyen', with a long horizontal flourish extending to the right.

KHANH VAN NGUYEN
PRIMARY EXAMINER
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